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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER	
LUKS, JEREMY AUSTIN	

ART UNIT	PAPER NUMBER
2837	

DATE MAILED: 07/12/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/777,394	NOHL ET AL.	
	Examiner	Art Unit	
	Jeremy Luks	2837	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *12 February 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-18* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-18* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *2/12/04, 4/1/04*, 6/10/05
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-3, 5-6 and 10-11 are rejected under 35 U.S.C. 102(b) as being anticipated by Lawrence (5,388,408).

With respect to Claims 1-3, Lawrence teaches an exhaust muffler (Figure 3) comprising a housing (Figure 16, #100) having an exhaust passage (104); and a valve (40) supported by said housing (100) and arranged in said exhaust passage (104) movable between multiple positions for tuning said exhaust muffler (Col. 8, Line 60-Col. 9 Line 3); and an electrical actuator (114) supported by said housing (100), said electrical actuator (114) actuating said valve (40) between said multiple positions; wherein said housing (Figure 26, #150) includes a main housing portion (160) and an actuator mounting pipe (80', 162) extending exteriorly away from said main housing portion (160), and an inlet pipe (156) extending exteriorly away from said main housing portion (160) proximate and generally parallel to said actuator mounting pipe (80', 162).

With respect to Claims 5 and 6, Lawrence teaches wherein said exhaust passage (Figure 16, #104) includes a valve body (102) supporting said valve (40) with a shaft (108) extending into said valve body (102) and said valve (40) secured to said shaft (108), said electrical actuator (114) rotating said shaft (108) to move said valve

(40) between said multiple positions; and a rod (Examiner is referring to the shaft portion secured between gear #112 and electrical actuating motor #114) is arranged transverse to said shaft (108), and said electrical actuator (114) moving said rod generally linearly to rotate said shaft (108).

With respect to Claims 10 and 11, Lawrence teaches wherein an exhaust gas flows through said exhaust passage (Figure 3, #104) with substantially all of said exhaust gas flowing though said valve (400 in each of said multiple positions (Col. 8, Lines 44-66); and wherein said exhaust passage (104) is in fluid communication with a tuning chamber (26) and said tuning chamber (26) is in fluid communication with an outlet pipe (30) carrying exhaust gas from a main housing portion.

3. Claims 14 and 15 are rejected under 35 U.S.C. 102(b) as being anticipated by Rutschmann (5,582,004). Rutschmann teaches an engine (Figure 1, #1) including multiple cylinders (2, 4); a controller (6) selectively activating multiple cylinders (2, 4) to provide a desired power displacement (Col. 1, Lines 8-16); and an exhaust system supporting a valve (15) and an electrical actuator (Col. 3, Lines 50-51) selectively electrically actuated by said controller (6) to move said valve between multiple positions in response to said desired power displacement (Col. 3, Line 57-Col. 9, Line 39).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lawrence (5,388,408) in view of Matsumoto (JP 2003161149 A). Lawrence is relied upon for the reasons and disclosures set forth above. Lawrence fails to teach at least one heat shield is arranged between said electrical actuator and said inlet pipe. Matsumote teaches a heat shield (Figure 4, #72) outside of an inlet pipe (66), and when used in combination, between an inlet pipe and electrical actuator. It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the apparatus of Lawrence, with the apparatus of Matsumoto in order protect the electrical actuator from damage due to the heat produced within the exhaust housing.

5. Claims 7 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lawrence (5,388,408) in view of Yashiro (5,739,483). Lawrence is relied upon for the reasons and disclosures set forth above. Lawrence fails to teach wherein said housing includes a stop limiting travel of at least one of said rod and said shaft; said housing includes an actuator mounting pipe extending into a main housing portion, and a first bearing arranged on said actuator mounting pipe supports one end of said shaft and a second bearing arranged on said valve body supports another end of said shaft. Yashiro teaches a housing (Figure 2, #1) including a stop (19) limiting travel of a shaft (15); said housing (1) includes an actuator mounting pipe (Figure 1, #8) extending into a main housing portion (2), and a first bearing (Figure 2, #18) arranged on said actuator mounting pipe (8) supports one end of said shaft (15) and a second bearing (18) arranged on said valve body supports another end of said shaft (15). It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the

apparatus of Lawrence, with the apparatus of Yashiro to better support the shaft and rod, increasing the durability of the valve mechanism.

6. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lawrence (5,388,408) in view of Douglas (5,290,974). Lawrence is relied upon for the reasons and disclosures set forth above. Lawrence fails to teach wherein said housing includes a main housing portion having at least one baffle supporting an outer shell with at least one of said at least one baffle and said valve body including locating features providing a desired orientation between said at least one baffle and said valve body. Douglas teaches a housing (Figure 4) including a main housing portion having at least one baffle (46) supporting an outer shell (44) with at least one of said at least one baffle (46) and said valve body (62) including locating features (50, 66) providing a desired orientation between said at least one baffle (46) and said valve body (62). It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the apparatus of Lawrence, with the apparatus of Douglas to provide a tab and notch alignment apparatus for an exhaust system which does not require the additional cost of aligning and welding steps during production.

7. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lawrence (5,388,408) in view of Peube (5,655,367). Lawrence is relied upon for the reasons and disclosures set forth above. Lawrence fails to teach position sensor determining said multiple positions of said valve. Peube teaches position sensor (Figure 3, #17b) determining said multiple positions of said valve (14) (Col. 5, Lines 5-15). It would have been obvious to one of ordinary skill in the art at the time of the

invention to combine the apparatus of Lawrence, with the apparatus Peube to measure a physical quantity characteristic of the instantaneous flow rate of the gases to vary the energy loss of the gases flowing in the exhaust pipe.

8. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lawrence (5,388,408) in view of Tadokoro (4,926,636). Lawrence is relied upon for the reasons and disclosures set forth above. Lawrence fails to teach a return spring biasing said valve to one of said multiple positions. Tadokoro teaches a return spring (Figure 1, #26b) biasing a valve (25) to one of a multiple of positions (Col. 6, Lines 5-22). It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the apparatus of Lawrence, with the apparatus of Tadokoro to return the valve to an open state in the event of a malfunction.

9. Claims 16 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rutschmann (5,582,004) in view of Peube (5,655,367). Rutschmann is relied upon for the reasons and disclosures set forth above. Rutschmann fails to teach wherein said exhaust system includes a position sensor detecting said multiple positions of said valve, said position sensor communicating to said controller, wherein said controller determines a malfunction condition based upon information from said position sensor. Peube teaches an exhaust system (Figure 3) includes a position sensor (17b) detecting said multiple positions of said valve (14) (Col. 5, Lines 5-15), said position sensor (17b) communicating to said controller (16), wherein said controller (16) determines a malfunction condition based upon information from said position sensor (17b) (Col. 3, Line 66-Col.4, Line 3). It would have been obvious to one of ordinary skill in the art at

the time of the invention to combine the apparatus of Rutschmann with the apparatus of Peube to detect and diagnose a malfunction of the valve assembly.

10. Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Rutschmann (5,582,004) in view of Tadokoro (4,926,636). Rutschmann is relied upon for the reasons and disclosures set forth above. Rutschmann further teaches a powered electrical actuator. Rutchman fails to teach a return spring biasing a valve to one of a multiple positions in the event of power loss of the electrical actuator. Tadokoro teaches teach a return spring biasing (Figure 1, #26b) a valve (25) to one of a multiple positions (Col. 6, Lines 5-22), and would be capable of doing so in the event of power loss of the electrical actuator described by Rutchmann when used in combination. It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the apparatus of Lawrence, with the apparatus of Tadokoro to return the valve to an open state in the event of a malfunction.

Conclusion

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Pertinent arts of record relating to electrically controlled in-muffler valves for use during cylinder deactivation are disclosed in the PTO-892.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeremy Luks whose telephone number is (571) 272-2707. The examiner can normally be reached on Monday-Thursday 8:30-6:00, and alternating Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lincoln Donovan can be reached on (571) 272-1988. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Jeremy Luks
Patent Examiner
Art Unit 2837

LINCOLN DONOVAN
SUPERVISORY PATENT EXAMINER